IN THE CLAIMS:

1-[[27]] 26. (Cancelled)

[[28]] 27. (Currently Amended) A system for analyzing elements in a sample comprising:

a combustion member comprising one of a high-frequency heating furnace and an electric resistance furnace for receiving the sample;

a source of oxygen gas connected to the combustion member to supply oxygen gas to the combustion member as the sample is heated to gasify the elements in the sample;

a sample section ~~means~~ connected to the ~~heating~~ combustion member by an exhaust conduit for sampling at a constant interval and at constant amounts;

a dust filter unit operatively connected to the exhaust conduit for removing dust;

an oxidizing device operatively connected to the exhaust conduit for oxidizing [[the]] a gas output of the combustion member;

a dehumidifier for dehumidifying the gas output before the gasified elements are analyzed;

a mass spectrometer; [[and]]

a conduit connecting the sampling section to the mass spectrometer whereby the gasified elements are analyzed quantitatively by the mass spectrometer to determine at least an element of C, S, and N to an accuracy of 0.1 ppm; and

a feedback circulating system for recirculating the gasified elements to the combustion member until all of the elements in the sample are adequately gasified.

[[29]] 28. (Cancelled)

[[30]] 29. (Currently Amended) A system for analyzing elements in a steel specimen, comprising:

a combustion member for receiving the steel specimen;

a source of oxygen gas connected to the combustion member to supply oxygen gas to the combustion member as the ~~sample~~ specimen is heated to gasify the elements in the sample;

an exhaust channel from the combustion member for removing the gasified elements;

a dust filter unit, operatively connected to the exhaust channel, for removing any oxidized dust;

a dehumidifier unit, operatively connected to the exhaust channel, for removing water vapor;

an oxidizing device, operatively connected to the exhaust channel, for oxidizing any CO contained in the gasified elements;

a sampling section ~~means~~, connected to the exhaust channel, for sampling at a constant interval and at constant amounts of gasified elements; [[and]]

a mass spectrometer connected to the sampling section whereby the gasified elements are analyzed quantitatively to determine the elements in the steel specimen; and

a feedback circulating system connected to the combustion member and connected downstream of the dust filter unit and upstream of the mass spectrometer to provide a recirculation of a combustion gas containing the elements through the combustion member before analysis by the mass spectrometer.

[[31]] 30. (Currently Amended) The system of Claim [[30]] 29 wherein the mass spectrometer analyzes the gasified elements to an accuracy of 0.1 ppm.

[[32]] 31. (Currently Amended) The system of Claim [[30]] 29 further including means for providing an electric field to ionize the gasified elements prior to an introduction into the mass spectrometer including a heatable filament, an electron collecting electrode, an ion producing electrode, and an ion extracting electrode.

[[33]] 32. (Cancelled)

[[34]] 33. (Currently Amended) The system of Claim [[33]] 29 further including a suction pump operatively connected in the feedback circulating system to feed back the gasified elements until the steel ~~sample~~ specimen is completely combusted.

[[35]] 34. (Currently Amended) The system of Claim [[34]] 29 further including a valve member for selectively connecting the exhaust channel to either the feedback circulating system or the mass spectrometer.

[[36]] 35. (Currently Amended) The system of Claim [[35]] 29 wherein the combustion member is selected from one of a high-frequency heating furnace and an electric resistance furnace.